

WHAT IS CLAIMED IS:

1. A recording method for controlling a recording operation of recording a recording data on an optical storage medium so as to locate a starting position of a succeeding recording operation after a condition of interruption occurs to interrupt the recording operation, the method comprising:

recording a special pattern on the optical storage medium after the condition of interruption occurs and before the recording operation is interrupted;

locating the starting position, wherein a recorded data signal is obtained from the optical storage medium for searching for the special pattern after the condition of interruption is eliminated, and a detection signal is enabled with a delay of a detection delay time after the recorded data signal is detected to be similar to or the same as a portion of the special pattern;

enabling a recording laser with a delay of a link delay length after the detection signal is enabled; and

performing the succeeding recording with a delay of a laser enable time after the recording laser is enabled.

2. The recording method according to claim 1, wherein the step of recording the special pattern on the optical storage medium comprises a step of replacing a portion of recording data with the special pattern.
3. The recording method according to claim 1, wherein the step of recording the special pattern on the optical storage medium comprises a step of

inserting the special pattern into the recording data.

4. The recording method according to claim 1, wherein the step of recording the special pattern on the optical storage medium further comprises a step of calculating a length of the recording data behind the special pattern and defining it as a rest length.
5. The recording method according to claim 4, wherein the link delay length is determined by subtracting the detection delay time and the laser enable time from the rest length.
6. The recording method according to claim 1, wherein the special pattern comprises a data pattern that can be detected as being different from a normal format of the recording data.
7. The recording method according to claim 1, wherein the special pattern comprises a data pattern that does not appear in the recording data.
8. The recording method according to claim 1, wherein the special pattern comprises a data pattern having a length of continuously identical signal status greater than the maximum length of continuously identical signal status of the recording data.
9. The recording method according to claim 1, wherein the step of recording the special pattern on the optical storage medium further comprises a step of providing a physical address of the optical storage medium from detecting an address information prerecorded on the optical storage medium, and storing the physical address of the optical storage medium corresponding to where the special pattern is recorded as a special pattern physical address.

10. The recording method according to claim 9, wherein the step of locating the starting position comprises a step of subtracting a predetermined value from the special pattern physical address to obtain a special pattern searching physical address, and a step of starting to search for the special pattern according to the physical address of the optical storage medium and the special pattern searching physical address.
11. The recording method according to claim 10, wherein the step of locating the starting position further comprises a step of stopping the searching for the special pattern after searching for the special pattern within a predetermined range.
12. The recording method according to claim 1, wherein the step of recording the special pattern on the optical storage medium further comprises steps of providing a data position of the recording data from detecting an address information of the recording data, and storing the data position of the recording data corresponding to where the special pattern on the optical storage medium is recorded as a special pattern data position.
13. The recording method according to claim 12, wherein the step of locating the starting position comprises steps of subtracting a predetermined value from the special pattern data position to obtain a special pattern searching data position, providing a data position of the recorded data signal from detecting an address information of the recorded data signal, and starting to search for the special pattern according to the data position of the recorded data signal and the special pattern searching data position.

14. The recording method according to claim 13, wherein the step of locating the starting position further comprises a step of stopping the searching for the special pattern after searching for the special pattern within a predetermined range.
- 5 15. The recording method according to claim 1, wherein the step of recording the special pattern on the optical storage medium further comprises a step of storing a distance between the special pattern and a frame sync pattern of the recording data that is adjacent to the special pattern as a special pattern frame sync distance.
- 10 16. The recording method according to claim 15, wherein the step of locating the starting position comprises steps of subtracting a predetermined value from the special pattern frame sync distance to obtain a special pattern searching frame sync distance, detecting a frame sync pattern of the recorded data signal from the recorded data signal, and starting to search for the special pattern with a delay of the special pattern searching frame sync distance after the frame sync pattern of the recorded data signal is detected.
- 15 17. The recording method according to claim 16, wherein the step of locating the starting position further comprises a step of stopping the searching for the special pattern after searching for the special pattern within a predetermined range.
- 20 18. A recording drive for controlling a recording operation of recording a recording data on an optical storage medium so as to locate a starting position of a succeeding recording operation after a condition of interruption

occurs to interrupt the recording operation, the recording drive comprising:

a recording interruption generating module for enabling a recording

interruption enable signal when the condition of interruption occurs;

a data recording module for generating a recording enable signal to control a

5 recording laser so as to record the recording data on the optical storage

medium, wherein the data recording module records a special pattern

on the optical storage medium, outputs a special pattern information

corresponding to the special pattern, and disables the recording enable

signal after the recording interruption enable signal is enabled, and

10 continues to enable the recording enable signal according to a special

pattern detection signal; and

a special pattern detection module for receiving the special pattern

information and a recorded data signal obtained from the optical

storage medium to detect the special pattern, and enabling the special

15 pattern detection signal when the recorded data signal is detected to be

similar to or the same as a portion of the special pattern.

19. The recording drive according to claim 18, wherein the data recording module further comprises:

a rest length calculating unit for calculating a rest length of the recording

20 data after the special pattern and before the recording enable signal

being disabled;

an subtractor for receiving the rest length and a compensation value and

subtracting the compensation value from the rest length to generate a

recording delay length; and

an delay enabling unit for receiving the special pattern detection signal and enabling the recording enable signal with a delay of the recording delay length after the special pattern detection signal is enabled.

5 20. The recording drive according to claim 19, wherein the compensation value is determined according to the time between the recording enable signal is enabled and the recording laser starts to record the recording data.

21. The recording drive according to claim 19, wherein the special pattern is a data pattern that does not appear in the recording data.

10 22. The recording drive according to claim 19, wherein the special pattern is a data pattern that can be detected as being different from a normal format of the recording data.

23. The recording drive according to claim 19, wherein the special pattern comprises a data pattern having a length of continuously identical signal status greater than the maximum length of continuously identical signal status of the recording data.

24. The recording drive according to claim 20, wherein the data recording module further comprises:

a physical address addressing unit for providing a physical address of the

20 optical storage medium from detecting an address information prerecorded on the optical storage medium; and

a register for storing the physical address of the optical storage medium corresponding to where the special pattern is recorded, as a special

pattern physical address.

25. The recording drive according to claim 24, wherein the data recording module further comprises a special pattern search control unit for subtracting a predetermined value from the special pattern physical address to obtain a special pattern searching physical address, and for starting to search for the special pattern according to the physical address of the optical storage medium and the special pattern searching physical address.

26. The recording drive according to claim 25, wherein the special pattern search control unit stops the searching for the special pattern after searching for the special pattern within a predetermined range.

27. The recording drive according to claim 20, wherein the data recording module further comprises:

a data position addressing unit for providing a data position of the recording data from detecting an address information of the recording data, and for providing a data position of the recorded data signal from detecting an address information of the recorded data signal; and a register for storing the data position of the recording data corresponding to where the special pattern is recorded, as a special pattern data position.

28. The recording drive according to claim 27, wherein the data recording module further comprises a special pattern search control unit for subtracting a predetermined value from the special pattern data position to obtain a special pattern searching data position, and for starting to search for the

special pattern according to the data position of the recorded data signal and the special pattern searching data position.

29. The recording drive according to claim 28, wherein the special pattern search control unit stops the searching for the special pattern after searching
5 for the special pattern within a predetermined range.

30. The recording drive according to claim 20, wherein the data recording module further comprises a special pattern frame sync distance calculating unit for calculating a distance between the special pattern and a frame sync pattern of the recording data that is adjacent to the special pattern, and
10 storing the distance as a special pattern frame sync distance.

31. The recording drive according to claim 30, wherein the data recording module further comprises a special pattern search control unit for subtracting a predetermined value from the special pattern frame sync distance to obtain a special pattern searching frame sync distance, for detecting a frame sync
15 pattern of the recorded data signal from the recorded data signal, and for starting to search for the special pattern with a delay of the special pattern searching frame sync distance after the frame sync pattern of the recorded data signal is detected.

32. The recording drive according to claim 31, wherein the special pattern search control unit stops the searching for the special pattern after searching
20 for the special pattern within a predetermined range.